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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,936	12/14/2004	Kiyotaka Kobayashi	P26391	8652
7055	7590	09/19/2006	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			ZEWDU, MELESS NMN	
			ART UNIT	PAPER NUMBER
			2617	

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/516,936

Applicant(s)

KOBAYASHI ET AL.

Examiner

Meless N. Zewdu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 32-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36 is/are allowed.
- 6) ☒ Claim(s) 32-35 and 37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment (RCE)***

1. This action is in response to the communication filed on 9/13/06.
2. Claims 1-16 were previously cancelled.
3. Claims 17-31 are cancelled in the current amendment.
4. New claims 32-37 are pending in this action.
5. In light of the new claims and applicant's argument, examiner has withdrawn the double patenting rejection in view of a copending application No. 10/704,653 (see Office Action, mailed on 6/13/06).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In this regard claim 37, an independent claim, includes the features of claim 36, another independent claim, by reference, which is not appropriate. A claimed subject matter which applicant regards as the invention need to be particularly point out and distinctly claim the subject matter. For examination purpose, claim 37 is considered without regard to its reference to claim 36.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 32, 33 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Smith et al. (Smith) (US 2003/0162519 A1).

**As per claim 32:** Smith discloses a transmission apparatus that transmits modulated signals of independent channels (see fig. 10a; paragraph 0088; abstract), the transmission apparatus comprising:

a plurality of antennas that transmit the modulated signals (see fig. 10a; abstract; paragraph 0088);

an eigenvalue calculator that calculates an eigenvalue of a channel matrix generated using the modulated signals received by a communicating party (see paragraphs 0082-0084, 0086 and 0097); and

an antenna controller that selects one or more antennas transmitting the modulated signals based on the eigenvalue and outputs determined information as a control signal (see paragraph 0017; claim 24).

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**As per claim 33:** Smith discloses a communication method by which wireless communication is performed using a plurality of antennas in both a transmission apparatus and a reception apparatus (see fig. 10a; paragraph 0088; abstract), the communication method comprising:

transmitting, by the transmission apparatus, modulated signals of independent channels from the antennas (see paragraphs 0006-0008, 0017, 0025; claim 1);

calculating, by the reception apparatus, an eigenvalue corresponding to a channel matrix formed by channel estimation values of the received modulated signals (see paragraphs 0082-0086); and

selecting, by the transmission apparatus, one or more antennas transmitting the modulated signals based on the eigenvalue and transmitting determined information as a control signal (see paragraphs 0007, 0082-0086, 0110).

**As per claim 37:** Smith discloses a transmission apparatus comprising:

a signal processor that processes a signal using a parameter transmitted from the reception apparatus (see paragraphs 0007, 0110);

a transmitter that transmits a signal processed at the signal processor, to the reception apparatus from a plurality of antennas (see fig. 10a; abstract; paragraph 0088);

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (Smith) (US 2003/0162519 A1) in view of Kim et al. (Kim) (US 7,079,514 B2).

**As per claim 34:** Smith discloses a communication method for a system in which wireless communication is performed using a plurality of antennas in both a transmission apparatus and a reception apparatus (see fig. 10a; paragraphs 0088; abstract), the communication method comprising:

estimating an overall reception electric field strength of the system (see paragraphs 0084, 0102-0103);

calculating an eigenvalue corresponding to a channel matrix formed by channel estimation values (see paragraphs 0082-0086);

controlling a parameter based on the overall reception electric field strength of the system (see paragraphs 0084, 0130);

transmitting a signal processed with the controlled parameter in the transmission apparatus (see abstract; paragraphs 0006-0008, 0017, 0025; claim 1). But, Smith does not explicitly teach about calculating an effective reception electric field strength, as

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claimed by applicant. However, in the same field of endeavor, Kim teaches about a mobile communication system comprising a base station and a mobile apparatus, both utilizing an array of antennas, wherein a calculating unit calculates the number of beams, which is equal to the number of effective basis vectors, which examiner considers as an effective reception electric field strength (see co. 7, line 64-col. 8, line 16, lines 55-61; col. 9, lines 44-col. 10, line 30). When the references are combined as shown hereinabove, the modified system will be able to control the effective reception electric field strength as one of its parameters and the effective reception electric field strength will comprise a reception electric field strength available for demodulation processing based on the eigenvalue of Smith's radio communication device/system. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching of Smith with that of Kim for the advantage of minimizing the effect of fading, interference and noise for a mobile communication system (see col. 1, lines 8-12).

**As per claim 35:** the features of claim 35 are similar to the features of claim 34, with the exception of a feature in claim 35, - receiving a signal with the controlled parameter by the reception apparatus, which is taught by Smith (see paragraphs 0008-0010).

Examiner considers the reception of uncorrelated signals as receiving a signal with the controlled parameter. Hence, claim 35 is rejected on the same ground and motivation as claim 34.

***Allowable Subject Matter***

Claim 36 is allowed.

The following is an examiner's statement of reasons for allowance:

**As per claim 36:** the prior art of record does not each or fairly suggest a frame configuration controller that controls a parameter based on the overall reception electric field strength of a system and an effective reception electric field strength and transmits the information indicating the controlled parameter to the transmission apparatus, as recited therein.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Response to Arguments***

Applicant's arguments with respect to claims 32-37 have been considered but are moot in view of the new ground(s) of rejection.



### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meless N. Zewdu whose telephone number is (571) 272-7873. The examiner can normally be reached on 8:30 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Corsaro Nick can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Any inquiry of a general nature relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

Meless Zewdu

A handwritten signature in black ink, appearing to read "Meless Zewdu". The signature is fluid and cursive, with the first name "Meless" being more prominent and the last name "Zewdu" following in a similar style.

Examiner

15 September 2006.